

### 8.3. OUT OF BAND EMISSIONS

#### RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53, §90.669, §90.691, and §96.41

#### LIMITS

FCC: §22.917, §24.238, §27.53 (c), (g), (h), §90.669, §90.691

The minimum permissible attenuation level of any spurious emissions is  $43 + 10 \log (P)$  dB where transmitting power (P) in Watts.

FCC: §27.53 (a) (Band 30)

The minimum permissible attenuation level of any spurious emissions is  $70 + 10 \log (P)$  dB where transmitting power (P) in Watts.

FCC: §27.53 (m) (Band 7, 41)

The minimum permissible attenuation level of any spurious emissions is  $55 + 10 \log (P)$  dB where transmitting power (P) in Watts.

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40\text{dBm/MHz}$ .

#### TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

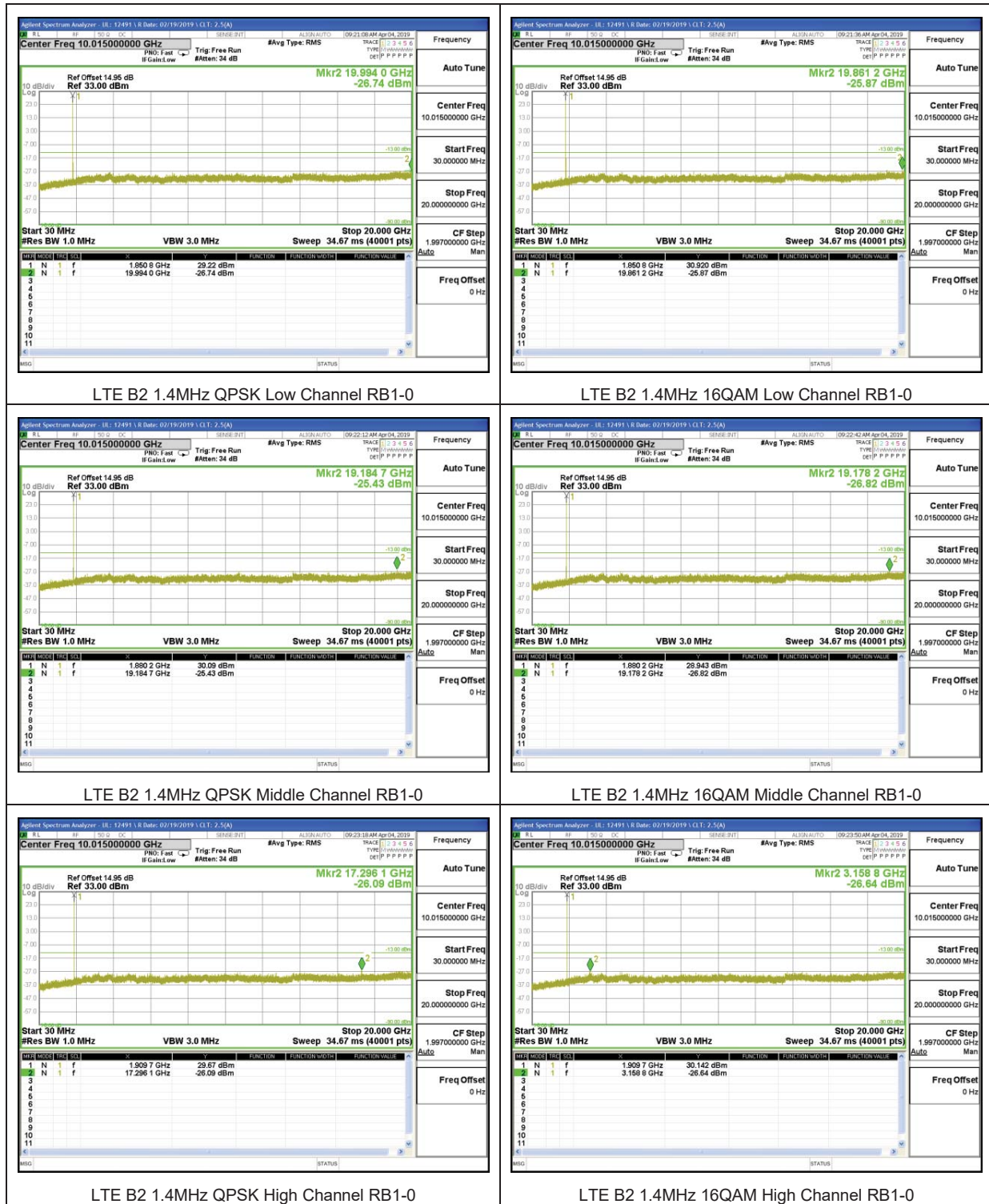
- Set display line at  $-13\text{ dBm}$ ,  $-25\text{dBm}$  and  $-40\text{dBm}$  according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.  
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

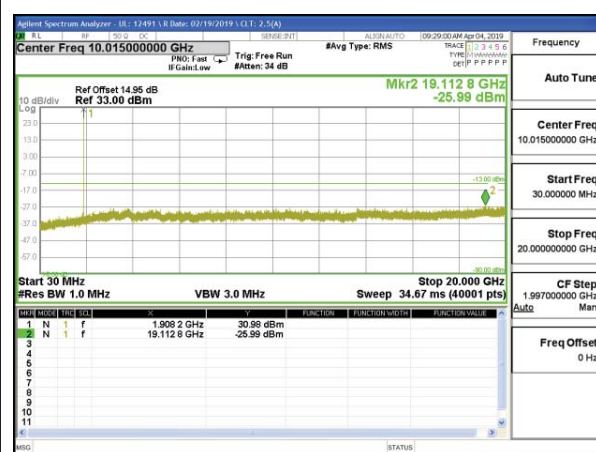
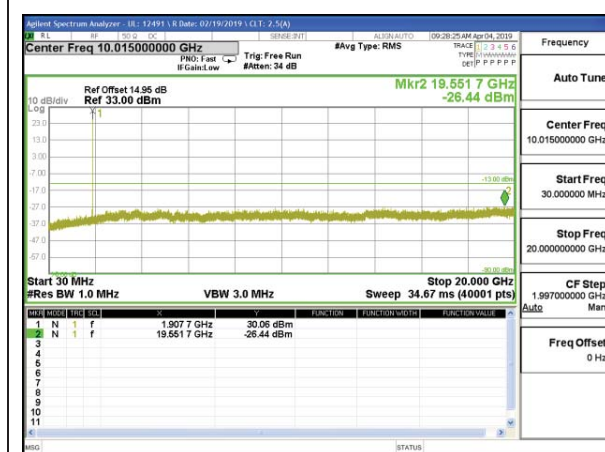
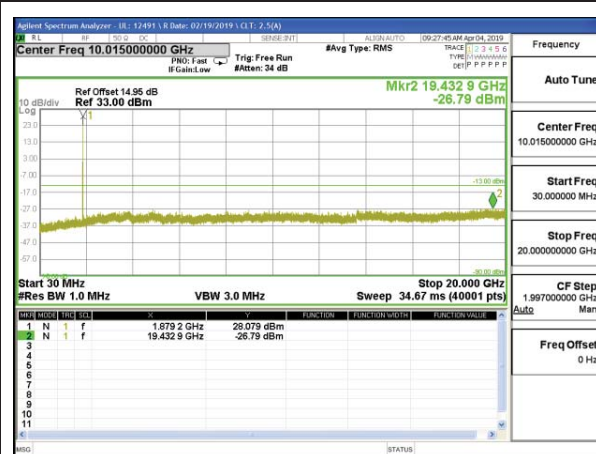
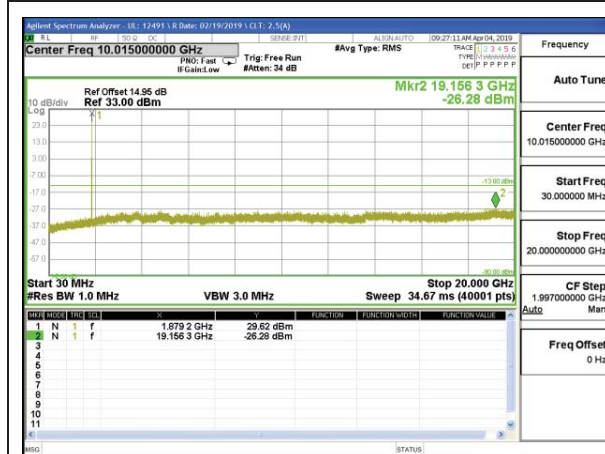
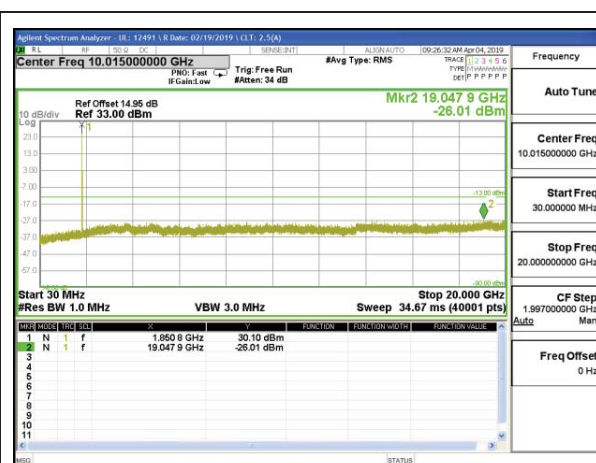
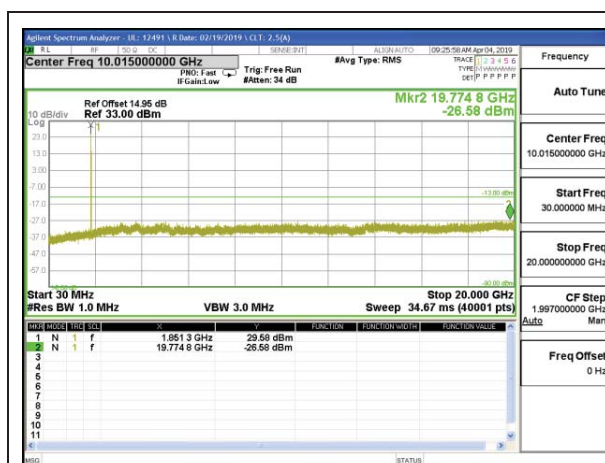
#### MODES TESTED

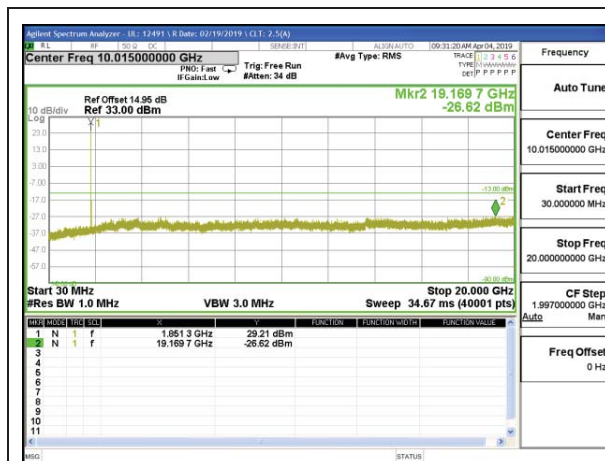
- LTE Band 2
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41
- LTE Band 48
- LTE Band 66



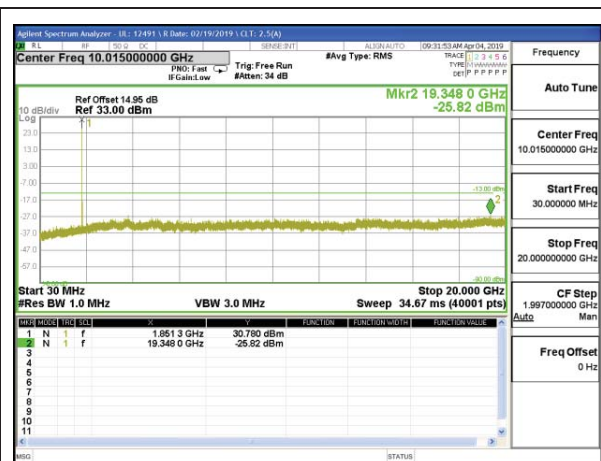
### 8.3.1. LTE BAND 2



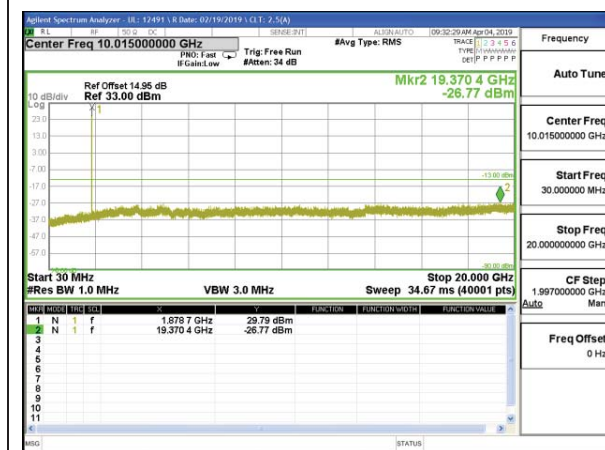




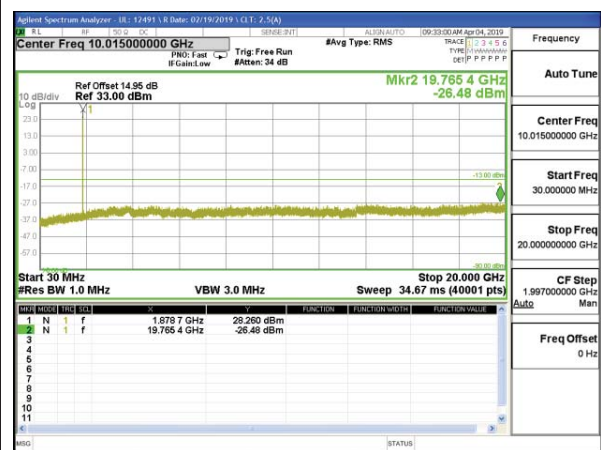
LTE B2 5MHz QPSK Low Channel RB1-0



LTE B2 5MHz 16QAM Low Channel RB1-0



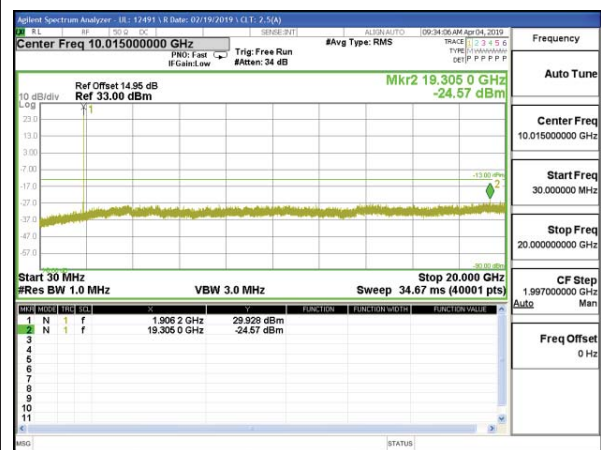
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LTE B2 5MHz 16QAM Middle Channel RB1-0

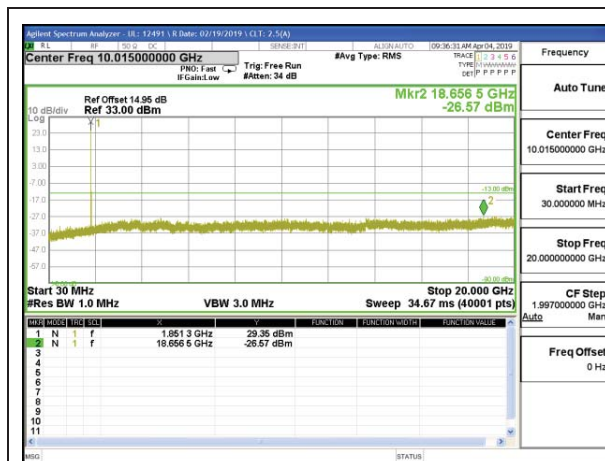


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LTE B2 5MHz 16QAM High Channel RB1-0

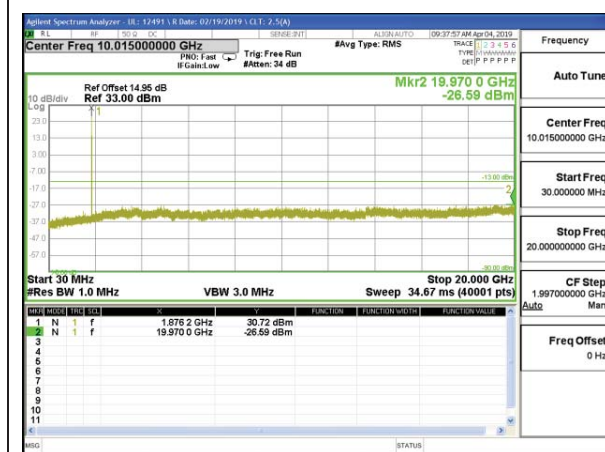




LTE B2 10MHz QPSK Low Channel RB1-0



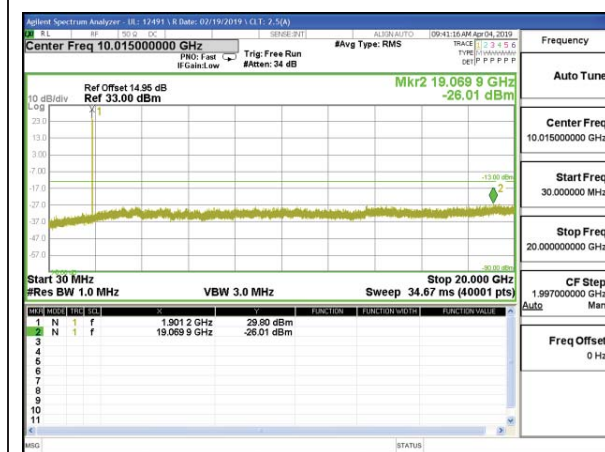
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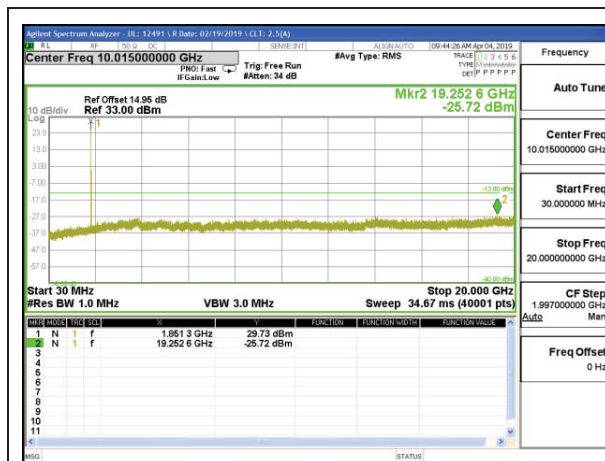
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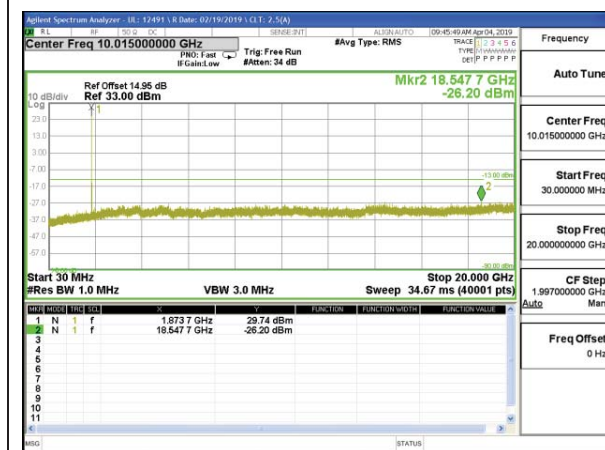
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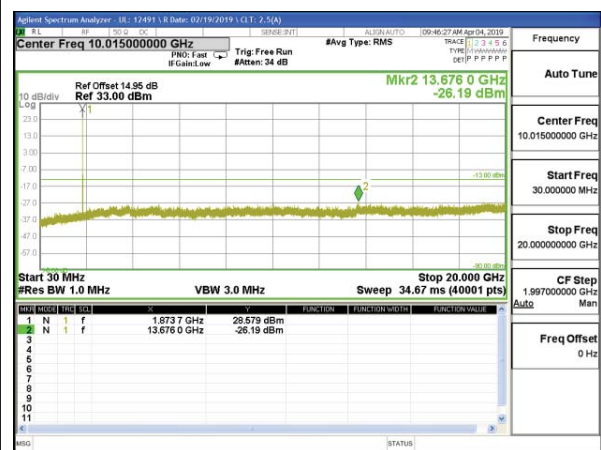
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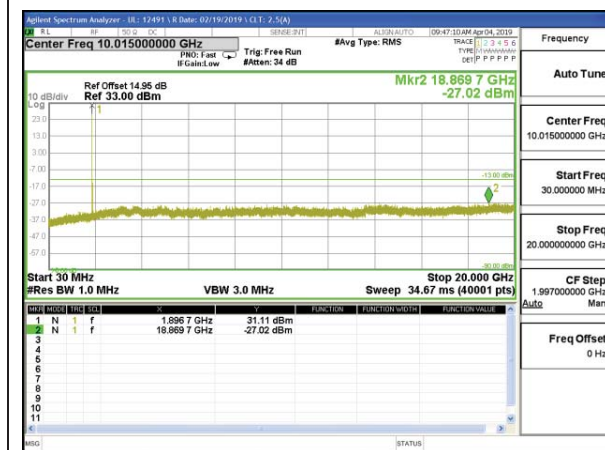
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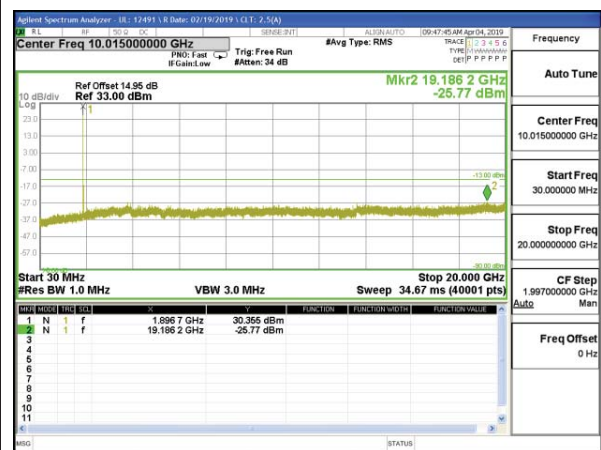
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LTE B2 15MHz 16QAM Middle Channel RB1-0



LTE B2 15MHz QPSK High Channel RB1-0



LTE B2 15MHz 16QAM High Channel RB1-0



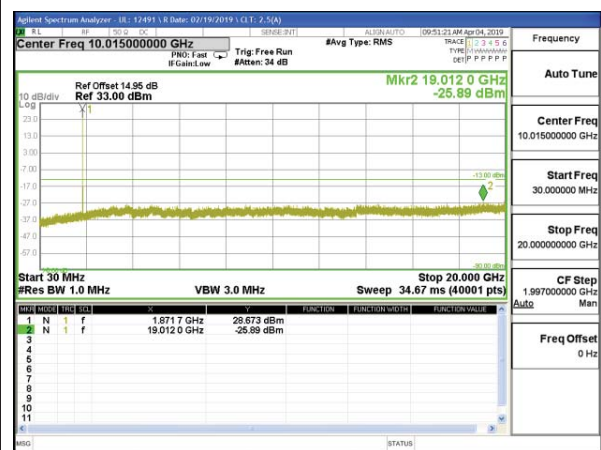
LTE B2 20MHz QPSK Low Channel RB1-0



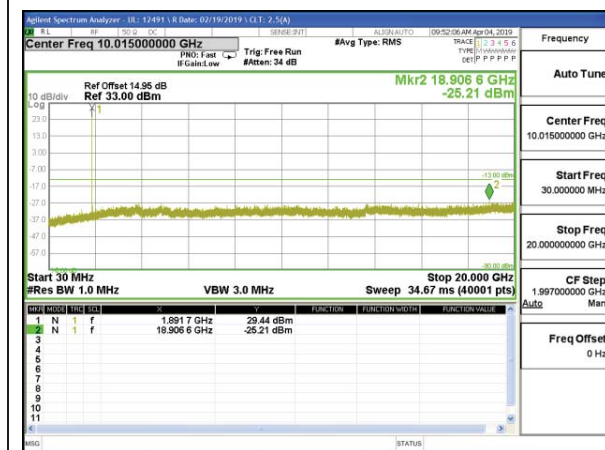
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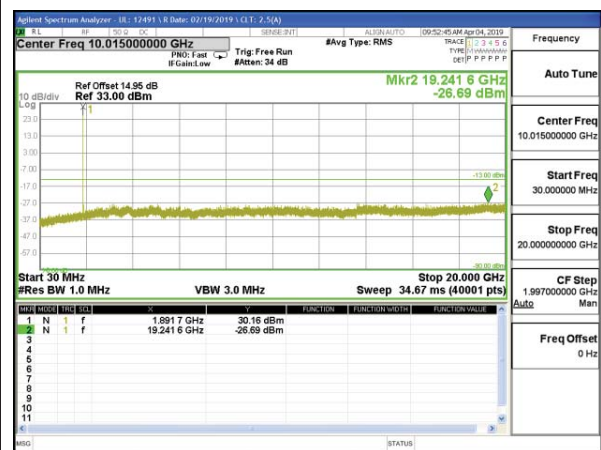
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LTE B2 20MHz 16QAM Middle Channel RB1-0

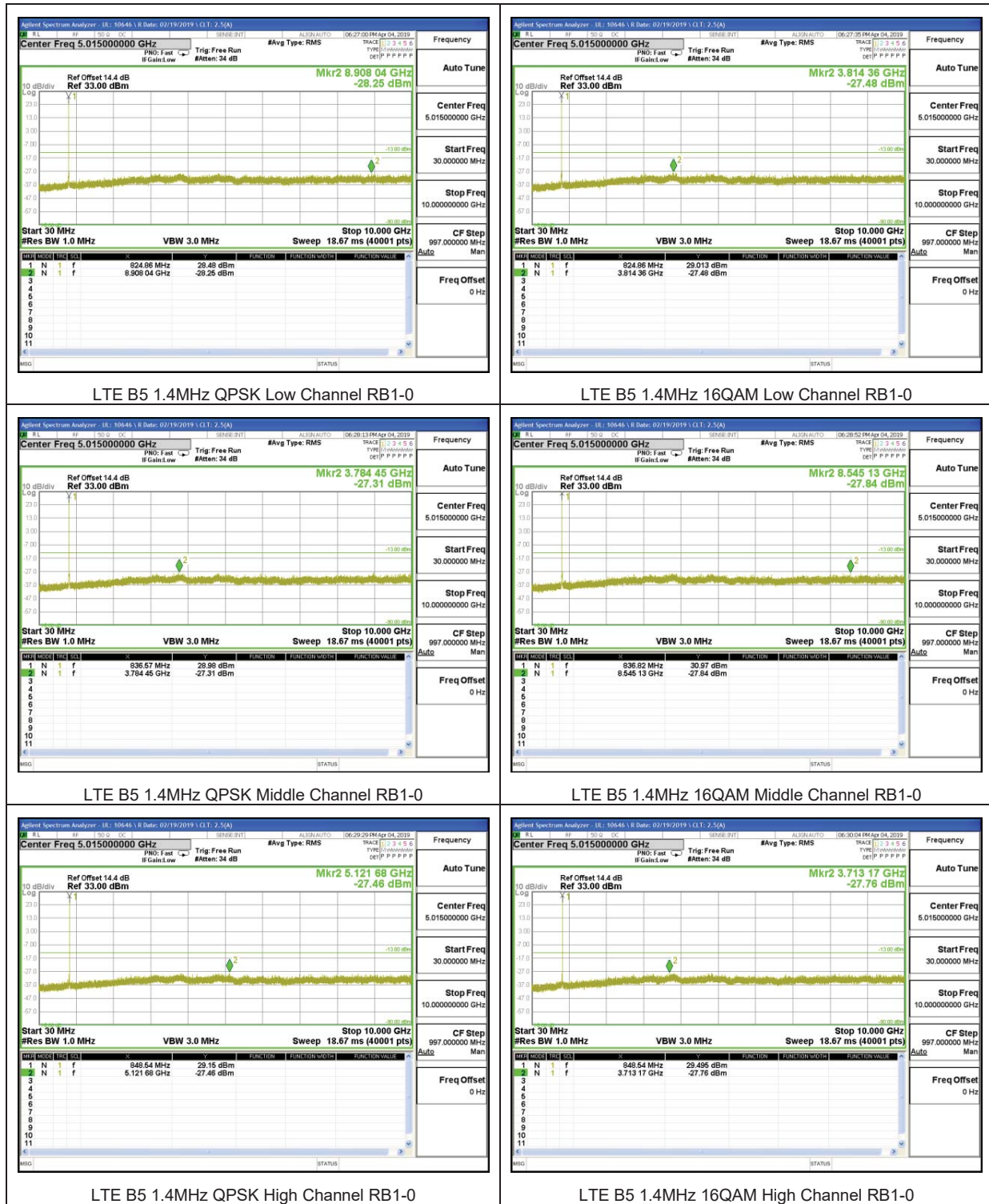


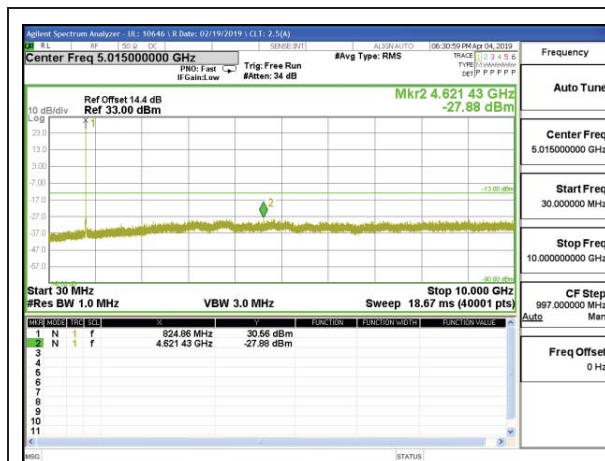
LTE B2 20MHz QPSK High Channel RB1-0



LTE B2 20MHz 16QAM High Channel RB1-0

### 8.3.2. LTE BAND 5

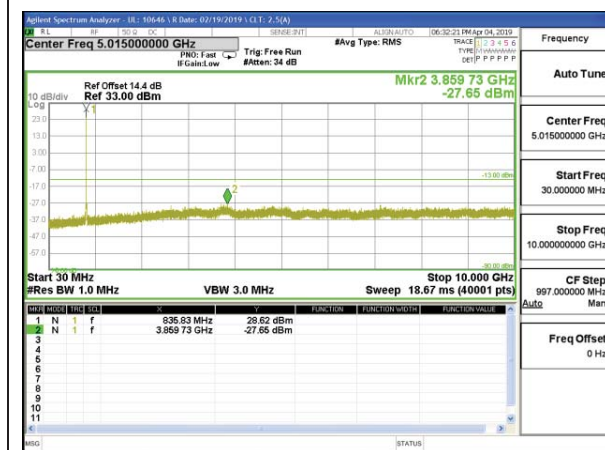




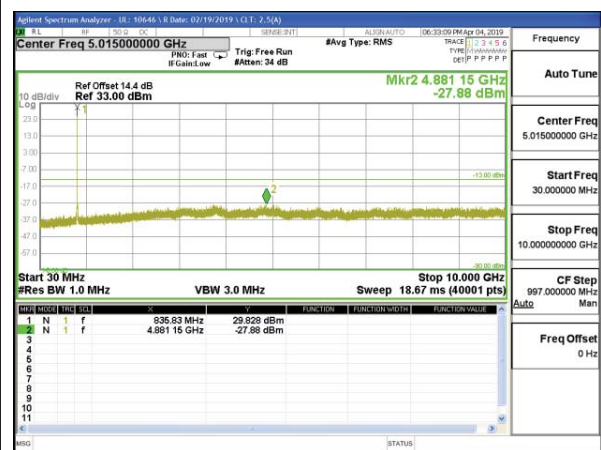
LTE B5 3MHz QPSK Low Channel RB1-0



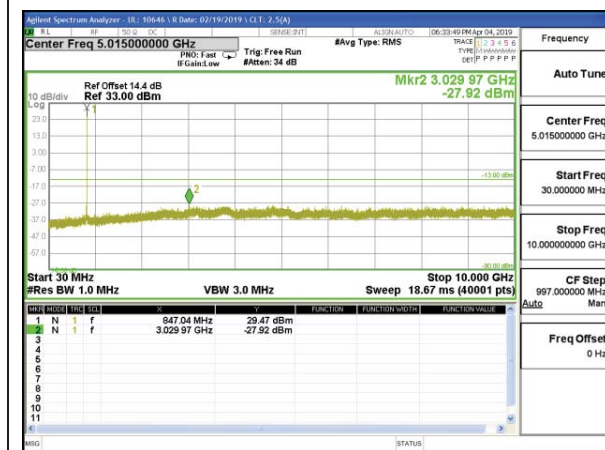
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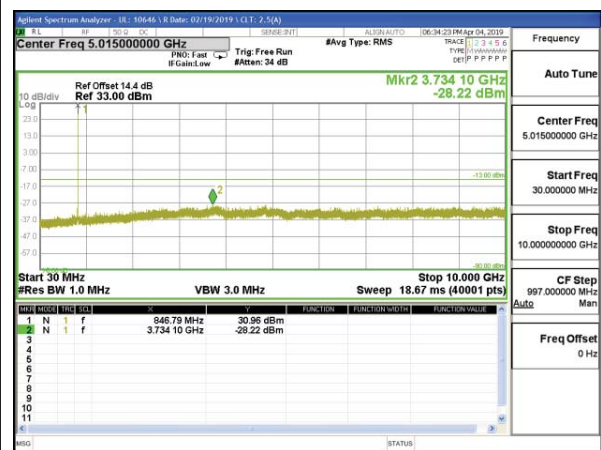
LTE B5 3MHz QPSK Middle Channel RB1-0



LTE B5 3MHz 16QAM Middle Channel RB1-0



LTE B5 3MHz QPSK High Channel RB1-0

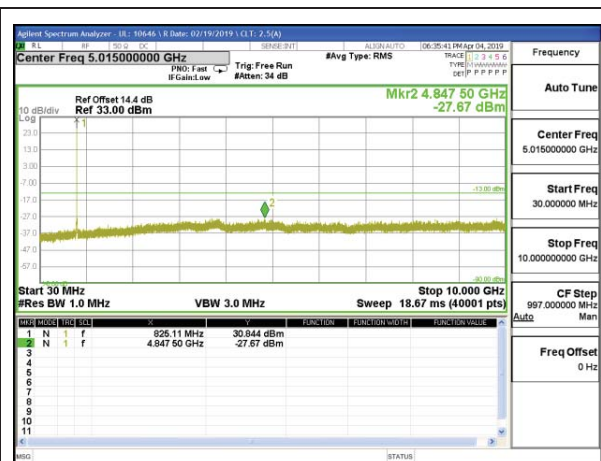


LTE B5 3MHz 16QAM High Channel RB1-0

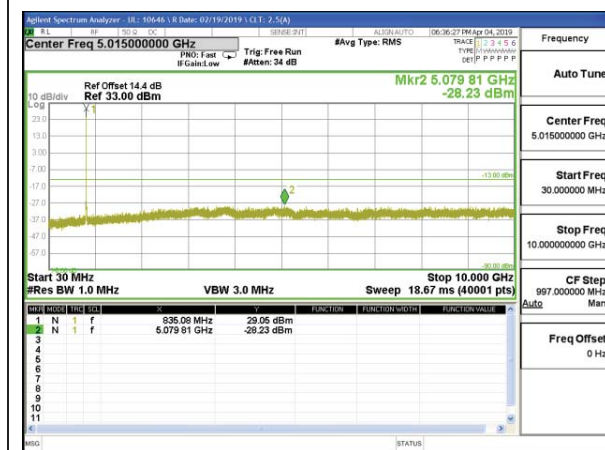




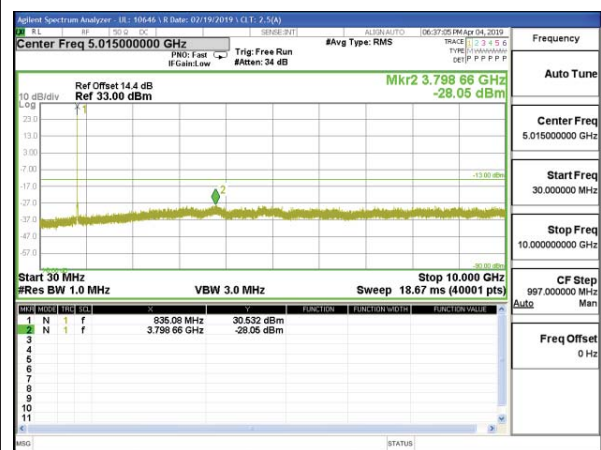
LTE B5 5MHz QPSK Low Channel RB1-0



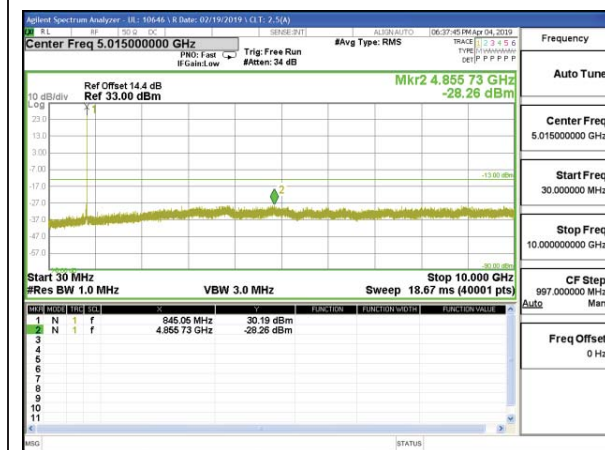
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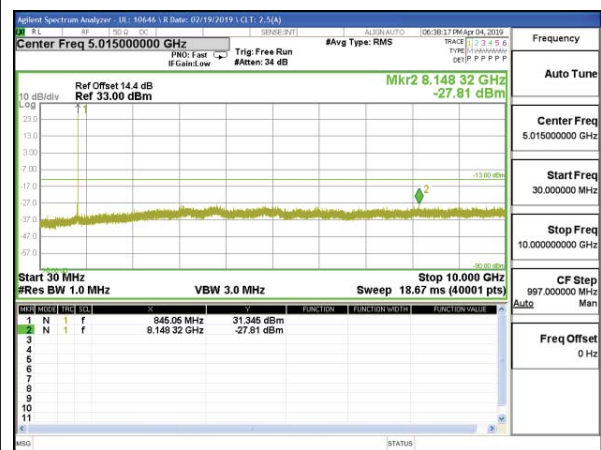
LTE B5 5MHz QPSK Middle Channel RB1-0



LTE B5 5MHz 16QAM Middle Channel RB1-0



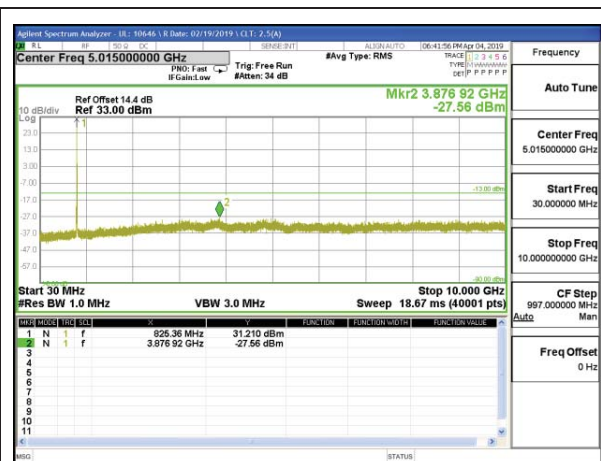
LTE B5 5MHz QPSK High Channel RB1-0



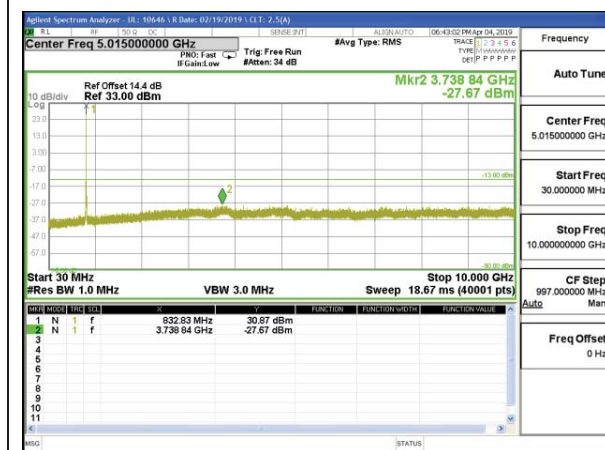
LTE B5 5MHz 16QAM High Channel RB1-0



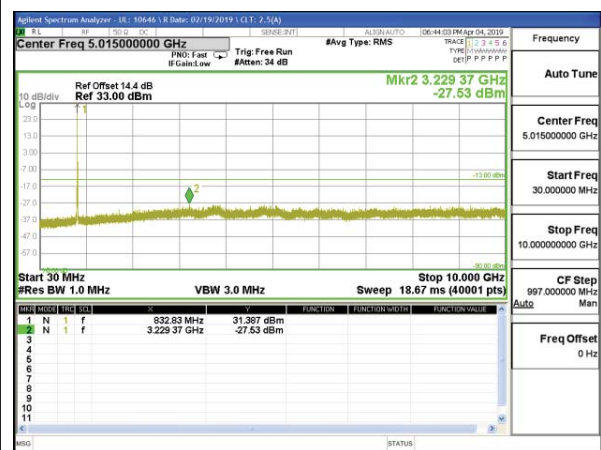
LTE B5 10MHz QPSK Low Channel RB1-0



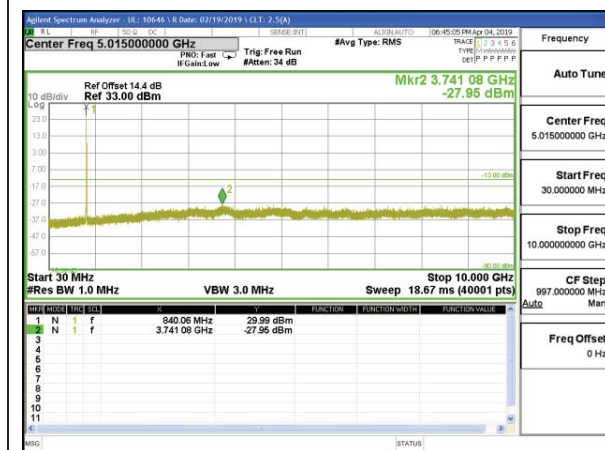
LTE B5 10MHz 16QAM Low Channel RB1-0



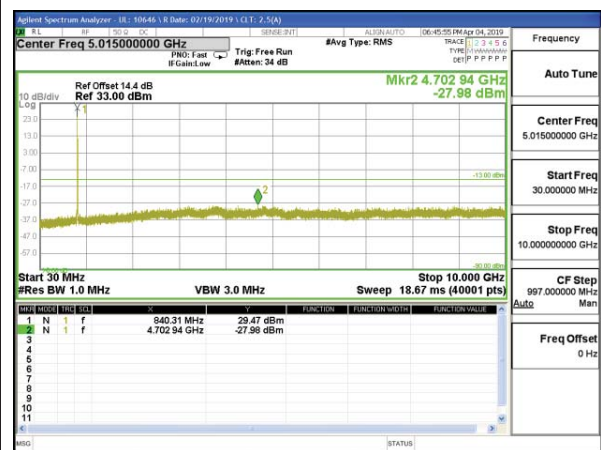
LTE B5 10MHz QPSK Middle Channel RB1-0



LTE B5 10MHz 16QAM Middle Channel RB1-0



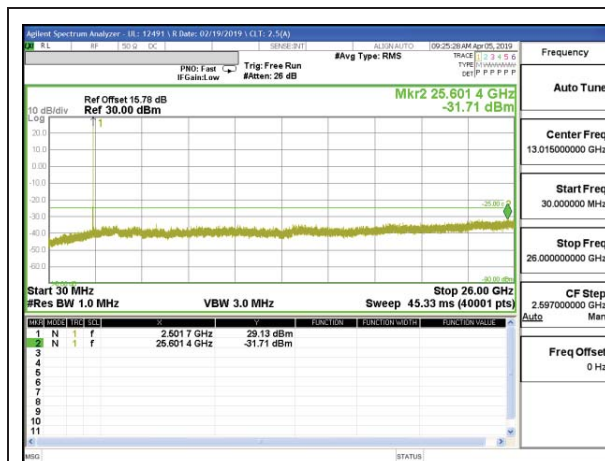
LTE B5 10MHz QPSK High Channel RB1-0



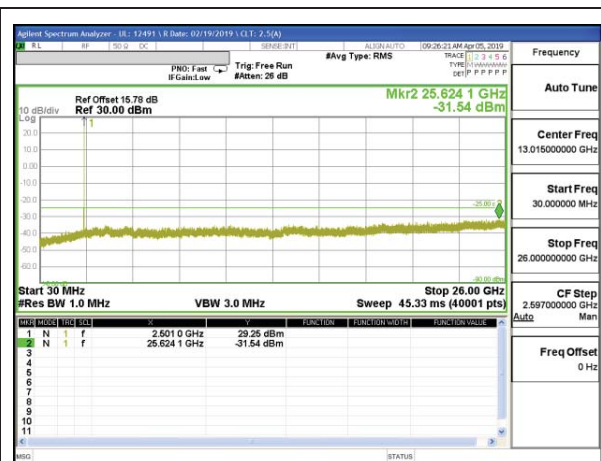
LTE B5 10MHz 16QAM High Channel RB1-0

### 8.3.3. LTE BAND 7

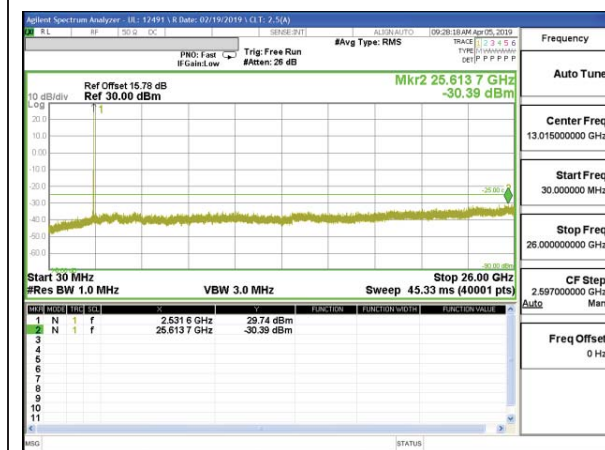




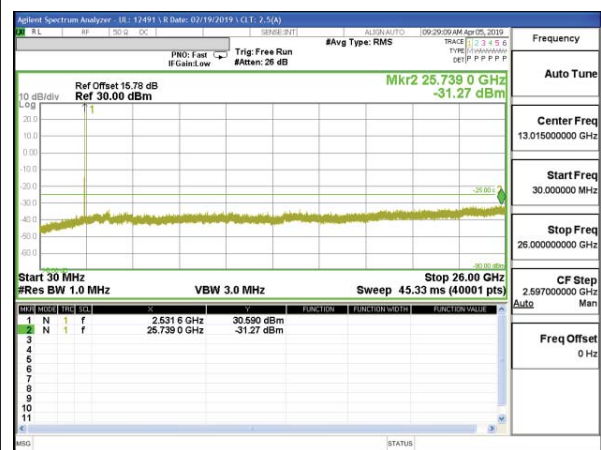
LTE B7 10MHz QPSK Low Channel RB1-0



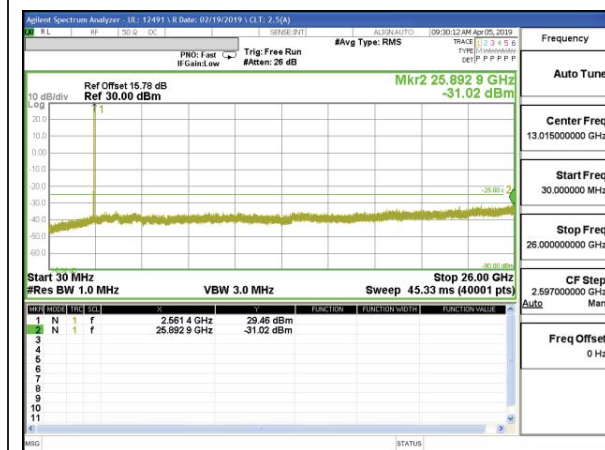
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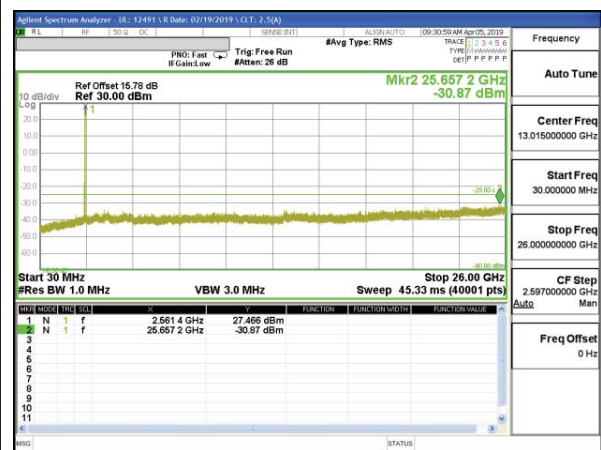
LTE B7 10MHz QPSK Middle Channel RB1-0



LTE B7 10MHz 16QAM Middle Channel RB1-0



LTE B7 10MHz QPSK High Channel RB1-0



LTE B7 10MHz 16QAM High Channel RB1-0